

### ABSTRACT

This invention provides a multilayer pinned reference layer for a magnetic device. In a particular embodiment a magnetic tunnel junction cell is provided. Each magnetic memory tunnel junction cell provides at least one ferromagnetic data or sense layer, an intermediate layer in contact with the data layer, and a multilayer pinned ferromagnetic reference layer. The multilayer pinned reference layer is in contact with the intermediate layer, opposite from the data layer. The multilayer pinned reference layer is characterized by at least one first layer of ferromagnetic material and at least one second layer of ferromagnetic material in physical contact with the first layer and magnetically coupled to the first layer. The first and second layer self seed to provide a  $\langle 111 \rangle$  crystal texture used in establishing the pinning magnetic field of the reference layer.